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Engineering and Science

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Transmitted Electronically

July 5, 2007

Ms. Donna Webster
Remedial Project Manager
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW, 11th Floor
Atlanta, Georgia 30303

Subject: **Sampling and Analysis Plan Technical Assistance Review Comments**
Revision 0
Carborundum Electro Minerals
EPA Contract No. EP-W-05-053
Technical Direction Document (TDD) No. TNA-05-003-0042

Dear Ms. Webster:

T N & Associates, Inc., Superfund Technical Assessment and Response Team is submitting one copy of the Technical Assistance and Review Comments on the Carborundum Electro Minerals Sampling and Analysis Plan prepared by the Tennessee Department of Environment and Conservation. This submittal includes one copy of the technical review comments and the Sampling and Analysis Plan.

Please contact me at (770) 366-6751 or Allyson Warrington at (678) 355-5550 ext. 5709, if you have any questions regarding these technical review comments.

Sincerely,

Stacy L. Kowalski

Stacy Kowalski
START Project Manager

Enclosure

cc: Katrina Jones, EPA Project Officer
Greg Kowalski, START Program Manager (w/o enclosure)
START File

Technical Assistance and Review Comments

1.0 Introduction

This document specifies the results of the T N & Associates, Inc. (TN&A) technical assistance and review comments of the following report:

Site Name:	Carborundum Electro Minerals
Document:	Sampling and Analysis Plan
Location:	Caryville, Campbell County, Tennessee
TN&A Reviewer:	Stacy Kowalski
Date of Review:	June 2007

The Tennessee Department of Environment and Conservation (TDEC) intend to use this report as a Sampling and Analysis Plan (SAP) at the Carborundum Electro Minerals (CEM) property (the site). The site is briefly described in Section 2. Section 3 explains the process used to review the SAP and general comments regarding the deliverable. The specific comments listed in Section 4 are followed by TN&A's recommendation for their resolution in italics.

2.0 Site Description

The site is located at Stone Mill Road in the City of Caryville, Campbell County, Tennessee. The geographic coordinates are 32° 18′ 32.9″ North Latitude and 84° 11′ 01.1″ West Longitude. The site is comprised of approximately 105 acres of land located on Stone Mill Road; however, approximately 48 acres were used for former CEM operations. Former process buildings exist on portions of the property; however, the remaining area is comprised of residential, commercial, and industrial areas. Security at the property is limited.

3.0 General Comments

The SAP for the CEM site, submitted to EPA by TDEC, was reviewed for the following: completeness, consistency, the correct application of the Hazard Ranking System (HRS), logic, site characteristics,

reference citation, and the correct application of the EPA Environmental Standard Operating Procedures and Quality Assurance Manual (EISOPQAM).

4.0 Issues

4.1 Site Location and Climatology

The phrase "Site security is limited" is vague. Please clarify that this statement indicates that access to the site is unrestricted by any natural or manmade barriers (fences, topography, etc.).

In the Climatology section, Precipitation: the values needed for HRS scoring of a site are the 2-year/24-hour rainfall total and the net precipitation total.

4.2 Site Description, Operational History, and Waste Characteristics

TDEC states that at least one sinkhole is present on the site.

TN&A recommends that the general location of the sinkhole be mentioned in this sentence.

TDEC states that the former operations were conducted on 48 acres of the site.

TN&A recommends more specific details of these 48 acres, including location in relation to the entire property. TN&A also recommends that the reported elevations are specified as above mean sea level (amsl) measurements. Specifics regarding the location, in relation to the site, of all pertinent structures/sources/areas of concern should also be discussed.

The second paragraph of the Site Description Section is related to surface water characteristics at the site.

TN&A recommends moving this paragraph to the Surface Water Migration Pathway section.

The third paragraph of the Site Description Section is related to groundwater water characteristics at the site.

TN&A recommends moving this paragraph to the Groundwater Migration Pathway section.

In the fourth paragraph, TDEC states that a school is located 0.9-mile from the site.

Please indicate the direction of the school in relation to the site.

In the first paragraph of the Operational History Section, it is mentioned that the former electric furnace facility is the focus of the report.

TN&A recommends a brief mention of this fact, including the location of the furnace facility in relation to the entire 105 acre site area, in the Site Location and Site Description Sections of the SAP.

The potential sources are listed in the Waste Characteristics Section.

TN&A recommends that the general location of all sources be included in the discussion. Additionally, a figure depicting the 105 acre site (including sources, buildings, etc.) is recommended.

4.3 Site Investigation Activities

In the second paragraph, TDEC states that EPA enforcement action was taken.

TN&A recommends that the EPA enforcement actions be summarized including the date, sampling results, and actions taken.

In the third paragraph, there is mention of materials being landfilled on site.

TN&A recommends more information be included in this paragraph including the date, the organization that performed the actions, and any sample results from the investigation.

The fourth paragraph mentions actions taken by TDEC.

TN&A recommends that the date of these actions be included as well as any specific findings or agreements.

The fifth paragraph mentions a sampling investigation by TDEC.

TN&A recommends that the results of the sampling investigations be summarized in this paragraph, including the sample types, number of samples collected, and the concentrations of hazardous substances identified in the samples.

4.4 Pathways

4.4.1 Groundwater Migration Pathway

Hydrogeology

General: The hydraulic conductivity of the soil overlying the bedrock aquifer should be included.

Groundwater Targets

The first paragraph mentions that the City of Cave Spring maintains intakes for municipal water supplies; however, it also mentions that the wellhead protection areas for the City surround the site.

It is unclear whether the City of Cave Springs utilizes groundwater wells or surface water intakes to supply drinking water to the municipality. TDEC mentions a wellhead protection area, which leads the reader to believe that there are municipal wells in the area. However, this paragraph discusses intakes and does not mention the number and general location (direction and distance ring) of any groundwater wells. If the City utilizes groundwater wells for drinking water use, then the number of wells, the distance ring, and direction that each well is located from the site should be included and the targets within each distance ring calculated per the HRS Final Rule. If the City utilizes surface water intakes for the municipal water supply, TN&A recommends that the paragraph be rephrased to state that the City of Cave Springs maintains no groundwater wells and that all municipal drinking water is supplied by surface water intakes. The description of the municipal water supply as related to surface water intakes, if that is the case, should be moved to the Surface Water Targets section of the SAP.

General: TN&A recommends a discussion of how the total population per radial ring was generated. According to the HRS, TDEC should multiply the number of connections per wellfield by the average persons per household in Campbell County, Tennessee, and then divide by the number of wells in each wellfield. Alternately, if the total number of persons served per wellfield is available, that is preferred over the use of the County average. According to the U.S. Census Bureau 2000 database, 2.44 persons per household live in Campbell County, Tennessee. For private wells, the number of wells should be multiplied by the County average persons per household, unless the actual number of persons living in homes with private wells is known. The aquifer(s) from which the municipal wells draw water should also be mentioned.

The table included in this section should be presented to indicate how the population value was determined. The columns should be labeled as follows: Distance Ring; Total Number of Private Wells; Total Number of Municipal Wells; Population.

4.4.2 Surface Water Migration Pathway

The Site Conditions Section mentions the route of the surface water migration pathway.

TN&A recommends that travel distances, flow directions, and average flow rates be used for each segment of the pathway to describe the migration route in greater detail.

The Fisheries Section states that the surface water migration pathway is used for fishing.

TN&A recommends that TDEC state whether the fishing is recreational or commercial and the average annual production (if known).

The Sensitive Environments Section states that there are "several" wetlands in the 15-mile surface water migration pathway.

TN&A recommends that this section include specific information related to the wetlands present along this migration route. Necessary information needed for accurate scoring includes the mileage of HRS

qualifying wetlands along the entire migration pathway. This information should be presented per segment of the surface water migration route in order to account for changes in flow rates within each segment, which will affect the score of the sensitive environment (see Appendix A of the HRS Guidance Manual for additional information).

The Public Drinking Water Section states that intakes are used to obtain water for the public supply.

This paragraph should include the population served per intake (see section 4.4.1 of this document for calculation information). TN&A also recommends clarification on whether the Cave Springs intake location and the Probable Point of Entry (PPE) from the site are the same location. If not, TDEC should state whether or not the Cave Springs intake is located downgradient of the PPE and the distance of the intake from the PPE.

4.4.3 Air Migration Pathway

In the third paragraph of the Air Monitoring Section, TDEC states that EPA undertook formal enforcement action at the site.

TN&A recommends that the enforcement actions undertaken by EPA be described. As no air samples have ever been collected, the air pathway will have to be scored on the potential to release.

4.5 Sampling Investigation

General: The most recent version of the EPA Science and Ecosystem Support Division (SESD) Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) is dated November 2001. TDEC should refer to this version of the EISOPQAM for the sampling event, to ensure that sampling procedures are accurate.

4.5.1 Surface and Subsurface Soil Sampling Section

The report states that a surface soil sample will be collected from the Church property.

TN&A recommends that if the church operates a daycare facility or maintains a playground, TDEC ensure that the sample collected is from either the playground (next to or beneath a piece of playground equipment such as a swing or basketball court) or from within 200 feet of the building so that the church has the potential to be scored as a Level I or Level II target.

The soil sampling investigation includes two proposed samples, one on site and one control sample.

TN&A recommends the collection of several additional soil samples from the property in order to accurately characterize the current conditions at the site. The report states that contaminated soil is present on the property; therefore, more samples should be collected to ensure that all sources at the site are investigated and described. Soil samples should be collected from areas throughout the property, focusing on areas suspected of contamination (stained soil, stressed vegetation, hazardous waste storage areas, etc.). Contaminated soil is a very common source type and should be addressed because it is a viable source at the site and it will likely raise the Hazardous Waste Quantity (HWQ).

4.5.2 Groundwater Sampling

This section does not discuss the location/rationale for four of the five proposed groundwater samples.

TN&A recommends a discussion of the location and rationale for all of the groundwater samples to be collected.

4.5.3 Background Sampling/Quality Control Sampling

TN&A recommends a matrix spike/matrix spike duplicate (MS/MSD) sample be collected 1 per 20 samples per matrix. In addition, TN&A recommends that field duplicate samples (1 per 10) be collected for each matrix (including surface soil) at the locations assumed to be the most contaminated. Duplicate samples are collected to compare accuracy; therefore, it is important to have duplicate results to confirm the highest detections. TN&A also recommends a preservative blank and a metals blank be collected for

analysis of Total Analyte List (TAL) metals. No water trip blanks need to be included for analysis of volatile organic compounds (VOCs) analyses because no samples are being analyzed for VOCs.

4.6 Tables

General: Based on the information contained in Table 2 on page 24, no source samples are proposed to be collected during this investigation. In order to fulfill the requirements of the HRS, chemical analysis of sources is imperative, in order to attribute hazardous substances to a site. TN&A recommends that TDEC consider the collection of source samples from all sources at the site including retention ponds, impoundments, contaminated soil, and/or any other HRS qualifying source type at the property.

4.7 General Comments

TN&A recommends that all Tables and Figures be located on the page immediately after the first mention of the Table or Figure. Alternately, the Figures and Tables could be included as Appendices A and B, respectively.

In Section 1.5 Permits and Authorization Requirements of the SAP, it states that if owner cannot be located TDEC will self-authorize site access. TN&A recommends that every effort be made to contact the property owner and obtain written access before site activities commence.

4.8 Conclusion

TN&A suggests that the SAP for CEM be revised according to the comments and suggestions put forth in this document.